

REMARKS

Status of the Claims

Claims 2, 6-8, 12-14, and 22-25 are pending in the present application. Support for the amendments to claims 2, 7, and 8 can be found in the present specification, *inter alia*, at page 13, lines 6-8 and page 14, line 10. Thus, no new matter has been added. Based upon the above considerations, entry of the present amendment is respectfully requested.

In view of the following remarks, Applicants respectfully request that the Examiner withdraw all rejections and allow the currently pending claims.

Issues under 35 U.S.C. § 112, second paragraph

Claims 2, 6-8, 12-14, and 22-25 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite (page 2 of the outstanding Office Action). Specifically, the Examiner asserts that the limitation “wherein said hydrogenated natural polyisoprenoid is an ingredient in modified lattices obtained by hydrogenating natural polyisoprenoid lattices in the state of latex” and the limitation “wherein said hydrogenated natural polyisoprenoid is a polymer which is the reaction product of a natural polyisoprenoid with hydrogen in the presence of a rhodium complex hydrogenation catalyst in a solvent” in the independent claims are listed as alternative embodiments in the present specification.

Applicants respectfully traverse because “hydrogenating natural polyisoprenoid lattices in the state of latex” and “hydrogenation of a natural polyisoprenoid in a solvent” are not alternative but compatible concepts, judged from the description “natural polyisoprenoid lattices [are] in the state of latex (in the state of aqueous emulsion)” (page 13, lines 6-8) and the appearance of water as a specific example of the solvent (page 14, line 10) in the present specification.

However, in an effort to further prosecution, the independent claims are amended herein to replace the phrase “in a solvent” to “in water.” Applicants respectfully submit that the amendment clarifies that the solvent of latex is substantially water and can distinguish the embodiment using latex from other embodiments. Thus, Applicants respectfully request that the outstanding rejection be withdrawn.

Issues under 35 U.S.C. § 103(a)

Claims 2, 6-8, 12-14, and 22-25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Schauder et al. '766 (US 5,728,766) in view of Singha et al. (Journal of Applied Polymer Science) (pages 3-6 of the outstanding Office Action).

Applicants respectfully traverse. Reconsideration and withdrawal of these rejections are respectfully requested.

Legal Standard for Determining Prima Facie Obviousness

MPEP 2141 sets forth the guidelines in determining obviousness. First, the Examiner has to take into account the factual inquiries set forth in *Graham v. John Deere*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), which has provided the controlling framework for an obviousness analysis. The four *Graham* factors are:

- (a) determining the scope and content of the prior art;
- (b) ascertaining the differences between the prior art and the claims in issue;
- (c) resolving the level of ordinary skill in the pertinent art; and
- (d) evaluating any evidence of secondary considerations.

Graham v. John Deere, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966).

Second, the Examiner has to provide some rationale for determining obviousness. MPEP 2143 sets forth some rationales that were established in the recent decision of *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007).

As the MPEP directs, all claim limitations must be considered in view of the cited prior art in order to establish a *prima facie* case of obviousness. *See* MPEP 2143.03.

Distinctions over the Cited References

Independent claims 2, 7, 8, and 22 recite that “said hydrogenated natural polyisoprenoid is an ingredient in modified lattices obtained by hydrogenating natural polyisoprenoid lattices in the state of latex.” The cited references fail to disclose this element.

Schauder et al. '766 teach a rubber-like article comprising an ethylene-propylene copolymer that has been molded and vulcanized. Schauder et al. '766 teach that the copolymer has a molecular weight distribution between 1 and 8. However, Schauder et al. '766 fail to teach a hydrogenated natural polyisoprenoid. Furthermore, Schauder et al. '766 do not teach that "hydrogenated natural polyisoprenoid is an ingredient in modified lattices obtained by hydrogenating natural polyisoprenoid lattices in the state of latex."

Singha et al. teach hydrogenating a natural rubber/*Hevea brasiliensis* to a degree of hydrogenation of 100% in the presence of a rhodium complex in a solvent. However, Singha et al. do not teach a hydrogenated natural polyisoprenoid. Furthermore, Singha et al. do not teach that "hydrogenated natural polyisoprenoid is an ingredient in modified lattices obtained by hydrogenating natural polyisoprenoid lattices in the state of latex."

Furthermore, Schauder et al. '766 and Singha et al. are not properly or easily combinable. The Examiner asserts that, when the description of the vulcanization of the synthetic rubber of Schauder et al. '766 is combined with the description of the research of the hydrogenation of natural rubber, one of ordinary skill in the art can easily complete the rubber-like elastic article of the present invention. Applicants respectfully traverse this assertion.

First, one of ordinary skill in the art would have no reason, rationale, or motivation to combine these teachings. Schauder et al. '766 require the use of synthetic rubber (EPM or EPDM). Schauder et al. '766 provide no reason, rationale, or motivation to add or substitute natural rubber, and no advantage can be found for using natural rubber in the method of Schauder et al. '766. In fact, one of ordinary skill in the art has no way of knowing whether the method of Schauder et al. '766 is applicable when natural rubber is used.

Moreover, the Examiner admits that the cited references do not teach the weight average molecular weight of the polymer. However, the Examiner asserts that, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.

However, an optimal value was not known at the time when the present invention was conceived. Moreover, Sasagawa et al. '475 (US 2003/0125475), which was cited in a previous Office Action, disclosed that "a hydrogenated polymer having a molecular weight exceeding

600,000 has poor processability" (paragraph [0020]). As such, previous disclosures actually taught away from the present invention. Reaching the present invention by conducting experiments opposite to the teaching of an appropriate value disclosed in Sasagawa et al. '475 would have to go through undue experimentation. Therefore, the limitation "the hydrogenated natural polyisoprenoid has a weight-average molecular weight of 83 (or 60) $\times 10^4$ or more" of the present application is not obvious over the cited references.

In this regard, at the time the present invention was conceived, one of ordinary skill in the art would have had difficulty in setting the weight-average molecular weight of a hydrogenated natural polyisoprenoid. JP2003-3024 (published on January 8, 2003 and enclosed as Reference material 1) describes, "A value of the molecular weight of EPDM can be estimated from a value of Mooney viscosity. As the Mooney viscosity increases, the molecular weight increases. If Mooney viscosity is 50, then the molecular weight becomes 300,000-400,000. If the Mooney viscosity [is] 170, then the molecular weight becomes about 600,000." Furthermore, JP 2003-3024 recites that "in EPDM whose Mooney viscosity at 125 degree C is higher than 170..., the formability tends to decrease when forming to a thin sheet and a high specific gravity material tends to become harder as well, therefore becomes tight to a human body due to hardness of the EPDM." Additionally, enclosed herewith is also Reference material 2 (http://www.sk-co-ltd.com/menu/silicone/silicone12_epm.html), which discloses the Mooney viscosity ML_{1+4} (100 degree C) = 40-100 as a characteristic of EPR. Reference materials 1 and 2 prove that the molecular weight of EPDM is practically 300,000-400,000 and the upper limit is about 600,000. That is, in the cited references, a molecular weight of 600,000 or more was not originally assumed. Therefore, the cited references teach away the molecular weight of 600,000 or more. Moreover, the description of molecular weight does not seem to be disclosed in Singha et al. In light of the situation above, at the time of invention, it would not be easy to consider setting "830,000 or more" as the weight-average molecular weight of the hydrogenated natural polyisoprenoid, and the value of the molecular weight was not evident even for one of ordinary skill in the art.

The rubber-like-material-containing articles according to the present invention have superior properties such as markedly improved abrasion resistance, weather resistance, improved SET (compression set) properties, and low-temperature resistance over conventional EPDMs. The Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of invention to have used the hydrogenated rubber of Singha et al. in the molded article of Schauder et al. '766. However, as discussed above, one of ordinary skill in the art would have no reason, rationale, or motivation for combining these references.

To establish a *prima facie* case of obviousness of a claimed invention, all of the claim limitations must be disclosed by the cited references. As discussed above, the cited references fail to disclose all of the claim limitations of independent claims 2, 7, 8, and 22, and those claims dependent thereon. Accordingly, the combinations of references do not render the present invention obvious.

Furthermore, the cited references or the knowledge in the art provide no reason or rationale that would allow one of ordinary skill in the art to arrive at the present invention as claimed. Therefore, a *prima facie* case of obviousness has not been established, and withdrawal of the outstanding rejections is respectfully requested. Any contentions of the USPTO to the contrary must be reconsidered at present.

CONCLUSION


A full and complete response has been made to all issues as cited in the Office Action. Applicants respectfully request that a timely Notice of Allowance issue for the present case clearly indicating that each of claims 2, 6-8, 12-14, and 22-25 are allowed and patentable under the provisions of title 35 of the United States Code.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Chad M. Rink, Reg. No. 58,258, at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted, **GARTH M. DAHLEN**
USPTO #43,575

By 

Marc S. Weiner
Registration No.: 32,181
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road
Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Applicants

Attachments:

Reference material 1: JP2003-3024 with partial translation

Reference material 2: http://www.sk-co-ltd.com/menu/silicone/silicone12_epm.html with partial translation